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RAW DATA

Distillation column

working volume	50% full

volume was calculated based on the dimentions from P&ID (pipeline & instrumentation diagram)

working volume	245.07	gal

	#	Temp. °F	Temp. °C	Flowrate (ft3/hr)	Flowrate (g/min)
Feed	25	189	87.2	204.7	25.5
Out	26	228	108.9	196.4	24.5
Average			98.1	200.6	25.0
Residence time	9.8	min			

Experimental plan for yeast killing

Trial#	1	2	Trial # 3	4	5	6	7 (control)
Temp. °C	80	90	95	80	90	95	n/a
Time (min)	5	5	5	9	9	9	n/a

At each condition: do triplate for counting

total plate	21

Yeast loads

g/L	OD600
1.3	2.6

Make yeast suspension

OD600	Dilution	Actual OD600
0.5809	50	29.045

Target OD600	mL Total volume	mL Suspension Volume	mL R/O water
2.6	100	9.0	91.0

OD600	CFU	0.1mL	Dilution	Expected CFU
1	2.00E+07	2.00E+06	10000	2.00E+02

Dilution for counting

	Trial #							
Dilution factor	1	2	3	4	5	6	7	no inoculation
	10	10	10	10	10	10	10000	negativ control
	10	10	10	10	10	10	10000	
	1	1	1	1	1	1	10000	
	1	1	1	1	1	1	n/a	
	1	1	1	1	1	1	n/a	

Labeling	1	2	3	4	5	6	7	no inoculation
	1.A	2.A	3.A	4.A	5.A	6.A	7.A	negativ control
	1.B	2.B	3.B	4.B	5.B	6.B	7.B	
	1.C	2.C	3.C	4.C	5.C	6.C	7.C	
	1.D	2.D	3.D	4.D	5.D	6.D	n/a	
	1.E	2.E	3.E	4.E	5.E	6.E*	n/a	

Counted colony #	1	2	3	4	5	6	7	no inoculation
	0	0	0	0	0	0	218	negativ control
	0	0	0	0	0	0	222	0
	0	0	0	0	0	0	209	
	0	0	0	0	0	0	n/a	
Average	0	0	0	0	0	0	n/a	
	0	0	0	0	0	0	216	

Initial yeast CFU/mL
2.2E+07

	1 (80°C/5min)	2 (90°C/5min)	3 (95°/5min)	4 (80°C/9min)	5 (90°C/9min)	6 (95°C/9min)
CFU/mL	0	0	0	0	0	0

Treated for 5 min

Temperature (°C)	CFU/mL
0	2.16E+07
80	0
90	0
95	0

Treated for 9 min

Temperature (°C)	CFU/mL
0	2.16E+07
80	0
90	0
95	0

SOP_Ferm 021: Yeast counting on agar plate

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SOP_Ferm 021: Yeast killing procedure for WBE CONFIDENTIAL	[redacted]		
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